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PATENT

Attorney's Docket No. 67,200-422

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: H.S. Lan

Serial No.: 09/ 955,512

Filed: Sept. 17, 2001

For: Loadport Equipped with Automatic Height Adjustment Means and Method for Operating

Group Art Unit: 3652

Examiner: Lowe, Michael S.

Commissioner for Patents
Alexandria, VA 22313

TRANSMITTAL OF APPEAL BRIEF (PATENT APPLICATION-37 CFR 192)

1. Transmitted herewith, in triplicate, is the APPEAL BRIEF in this application, with respect to the Notice of Appeal filed on May 6, 2004.

NOTE: "The Appellant shall, within 2 months from the date of the notice of appeal under §1.191(a) or within the time allowed for response to the action appealed from, if such time is later, file a brief in "triplicate", 37 C.F.R. 1.192(a) [emphasis added].

2. STATUS OF APPLICANT

This application is on behalf of:

X other than a small entity.
___ a small entity.

A verified statement:

___ is attached.
___ was already filed.

3. FEE FOR FILING APPEAL BRIEF

Pursuant to 37 CFR 1.17(f), the fee for filing the Appeal Brief is:

___ small entity \$165.00
X other than a small entity \$330.00

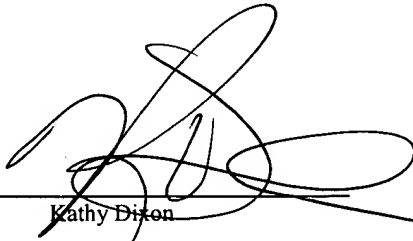
Appeal Brief fee due: \$ 330.00

Certificate of Mailing

I hereby certify that this correspondence is, on the date shown below, being:

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Label No. EV 531 645 469 US
in an envelope addressed to Commissioner
for Patents, Alexandria, VA 22313


Kathy Dixon

Dated: July 2, 2004

4. EXTENSION OF TERM

NOTE: The time periods set forth in 37 CFR 1.192(a) are subject to the provision of ☐ 1.136 for patent applications. 37 CFR 1.191(d). See also Notice of November 5, 1985 (1060 O.G. 27).

The proceedings herein are for a patent application and the provisions of 37 CFR 1.136 apply:

(complete (a) or (b), as applicable)

- (a) ☐ Applicant petitions for an extension of time under 37 CFR 1.136
(fees: 37 CFR 1.17(a)-(d) for the total number of months checked below:

	Extension (months)	Fee for other than small entity	Fee for small entity
<input type="checkbox"/>	one month	\$ 110.00	\$ 55.00
<input type="checkbox"/>	two months	\$ 420.00	\$210.00
<input type="checkbox"/>	three months	\$ 950.00	\$475.00
<input type="checkbox"/>	four months	\$1,480.00	\$740.00

Fee: \$ _____

If an additional extension of time is required, please consider this a petition therefor.

(check and complete the next item, if applicable)

- ☐ An extension for _____ months has already been secured, and the fee paid therefor of \$ _____ is deducted from the total fee due for the total months of extension now requested.

Extension fee due with this request: \$ _____

or

- (b) ☐ Applicant believes that no extension of term is required. However, this conditional petition is being made to provide for the possibility that applicant has inadvertently overlooked the need for a petition and fee for extension of time.

5. TOTAL FEE DUE

The total fee due is:

Appeal Brief Fee: \$ 330.00
Extension fee (if any) \$ _____

TOTAL FEE DUE: \$ 330.00

6. FEE PAYMENT

X Attached is a Credit Card Payment Form for the sum of \$ 330.00

A duplicate copy of this transmittal is attached.

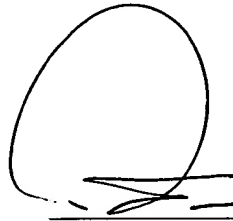
7. FEE DEFICIENCY

NOTE: If there is a fee deficiency and there is no authorization to charge an account, additional fees are necessary to cover the additional time consumed in making up the original deficiency. If the maximum six-month period has expired before the deficiency is noted and corrected, the application is held abandoned. In those instances where authorization to charge is included, processing delays are encountered in returning the papers to the PTO Finance Branch in order to apply these charges prior to action on the cases. Authorization to charge the deposit account for any fee deficiency should be checked. See the Notice of April 7, 1986, 1065 O.G. 31-33.

 X If any additional extension and/or fee is required, this is a request therefor
to charge Visa Credit Card No. 4756 8461 9568 0263

And/Or

 X If any additional fee for claims is required, please charge Visa Credit Card
No. 4756 8461 9568 0263

A handwritten signature in black ink, consisting of a large, stylized 'R' followed by a horizontal line and some smaller strokes.

Signature of Attorney

Registration No. 31,311

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Applicant: H.S. Lan

Group Art Unit: 3652

Serial No.: 09/955,512

Examiner: Lowe, Michael S.

Filed: Sept. 17, 2001

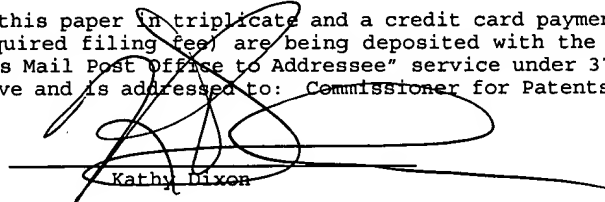
For: Loadport Equipped with Automatic Height Adjustment
Means and Method for Operating

Attorney Docket No.: 67,200-422

EXPRESS MAIL CERTIFICATE

"Express Mail" label number EV 531 645 469US
Date of Deposit July 2, 2004

I hereby certify that this paper in triplicate and a credit card payment form in the amount of \$330.00 (required filing fee) are being deposited with the United States Postal Service "Express Mail Post Office to Addressee" service under 37 CFR \$1.10 on the date indicated above and is addressed to: Commissioner for Patents, Alexandria, VA 22313-1450.


Kathy Dixon

APPEAL BRIEF

Box Appeal - Patents
Commissioner for Patents
Alexandria, VA 22313-1450

Sir:

Appellants appeal in the captioned application from the Examiner's final rejection, dated February 6, 2004, of claims 1-3, 5, 7-12, 14-17 and 19-20 under 35 USC §103(a) as being unpatentable over Cheng 6,053,688 in view of Jap. Pat. 2000124285, Mori et al 6,401,554 and Jap. Pat. 10120172.

It is urged that the rejection be reversed and that all the claims be allowed.

(1) **REAL PARTY IN INTEREST**

The real party in interest in the present appeal is the recorded Assignee of Taiwan Semiconductor Manufacturing Company, Ltd.

(2) **RELATED APPEALS AND INTERFERENCES**

There are no other appeals or interferences that are known to the Appellant, the Appellant's legal representative, or the assignee.

(3) **STATUS OF CLAIMS**

Claims 1-3, 5, 7-12, 14-17 and 19-20 are pending in the application.

Claims 1-3, 5, 7-12, 14-17 and 19-20 stand rejected.

No claims stand allowed.

(4) **STATUS OF AMENDMENTS**

A Request For Reconsideration was filed on or about April 6, 2004, which has no claim amendments.

An Advisory Action was mailed June 7, 2004 by the Examiner which maintained the rejection of all claims.

A Notice of Appeal was filed on or about May 6, 2004.

(5) SUMMARY OF THE INVENTION

In accordance with the present invention, a loadport for a semiconductor fabrication equipment that is equipped with automatic height adjustment and a method for operating the loadport are provided.

(Specification, page 8, paragraph 0018)

In a preferred embodiment, a loadport for a semiconductor fabrication machine that is equipped with an automatic height adjustment means is provided which includes a movable platform adapted for carrying a wafer cassette thereon and for moving vertically in an up-and-down direction; at least two support members for supporting the movable platform and for moving the platform in an up-and-down direction; a distance sensor mounted on a bottom surface of the movable platform for measuring a height of the movable platform; and a process controller for receiving a first signal from the distance sensor, comparing to a pre-stored datum and then sending a second signal to the at least two support members to move the movable platform until the first signal equals the pre-stored datum.

(Specification, page 8, paragraph 0019)

The invention is further directed to a method for automatically adjusting the height of a loadport that can be carried out by the operating steps of first providing a movable platform capable of being moved in an up-and-down direction; mounting the movable platform on at least two support members; mounting a distance sensor on a bottom surface of the movable platform; connecting a process controller to the distance sensor and the at least two support members; measuring a height of the movable platform and sending a first signal to the process controller; comparing the first signal with a pre-stored datum in the process controller and determining a deviation; and adjusting the height of the movable platform by the at least two support members until the deviation becomes zero.

(Specification, page 10, paragraph 0021)

(6) **ISSUE**

Is the rejection of claims 1-3, 5, 7-12, 14-17 and 19-20 under 35 USC §103(a) as being unpatentable over Cheng in view of Jap. Pat. '285, Mori et al and Jap. Pat. '172 proper when such references does not teach or suggest the specifically claimed limitations in the present application?

(7) GROUPING OF CLAIMS

The rejection of claims 1-3, 5, 7-12, 14-17 and 19-20 are contested as a group.

The claims stand or fall together within this group.

(8) ARGUMENTS

Claims 1-3, 5, 7-12, 14-17 and 19-20 are rejected under 35 USC §103(a) as being unpatentable over Cheng in view of Jap. Pat. '285, Mori et al and Jap. Pat. '172. It is contended that Cheng discloses a substantially similar device such as including a holding station 112, a screw 125 and controller, and the use of a plurality of screws is shown by Jap. '485. It is further contended that while Cheng does not disclose the distance sensors to control the vertical drive, the use of distance sensors are disclosed in Mori et al and Jap. '172.

The rejection of claims 1-3, 5, 7-12, 14-17 and 19-20 under 35 USC §103(a) based on Cheng, Jap. Pat. '285, Mori et al and Jap. Pat. '172 is improper and must be reversed.

The present invention teaches a loadport of a semiconductor fabrication equipment for receiving a wafer cassette and more particularly, relates to a **loadport** for a semiconductor fabrication equipment that is **equipped with automatic height adjustment means** capable of maintaining the loadport at a predetermined height and a method for operating the loadport. As clearly recited in independent claim 1:

"Claim 1. A loadport equipped with automatic height adjustment means comprising:

a movable platform adapted for ...;

at least two support members for supporting ...
and for moving said platform ...;

a distance sensor mounted ...; and

a **process controller for receiving** a first signal from said distance sensor, **comparing to** a pre-stored datum and then **sending** a second signal to said at least two support members to move said movable platform **until said first signal equals said pre-stored datum.**"

Two major elements are thus taught and claimed by the present invention; first, a **movable platform (or loadport)** for a semiconductor fabrication equipment. Secondly, a **closed-loop feed back control system** including a process controller for receiving a first signal from the distance sensor, **comparing to** a pre-stored

datum and then **sending** a second signal to the at least two support members to move the movable platform until the first signal equals the pre-stored datum.

The Appellants respectfully submit that neither one of the two major elements of the present invention are taught by the four references of Cheng, Jap. '285, Mori et al and Jap. 172.

While the Appellants respectfully agree with the Examiner that Cheng and Jap. '285 do not teach distance sensors to control a vertical drive for a loadport, the Applicants further respectfully submit that **neither reference teaches a loadport** for a semiconductor fabrication equipment. Furthermore, both Mori et al and Jap. '172 teach a wafer transporting **robot arm** equipped with distance sensors to determine the warpage of the robot blade. Neither Mori et al nor Jap. '172 is related to a loadport for a semiconductor fabrication equipment.

More importantly, **neither one of the four references teaches a closed-loop feed back control system** for the positioning of a loadport of a fabrication equipment. In other words, neither one of the four references teach a process controller for receiving

U.S.S.N. 09/955,512

a first signal from the distance sensor, comparing to a pre-stored datum and sending a second signal to the at least two support members to move the movable platform until the first signal equals the pre-stored datum.

The Appellants have clearly shown that the four references of Cheng, Jap. '285, Mori et al and Jap. '172, even when combines, do not teach the present invention **loadport** for a fabrication equipment and the **closed-loop feed back control system** as clearly recited in independent claims 1 and 11. The final rejection of Appellants' claims 1-3, 5, 7-12, 14-17 and 19-20 is respectfully improper and must be reversed.

In the Office Action of 02/06/04, the Examiner further argued that "applicant's discussion of certain individual features of the several references is insufficient to show obviousness where the rejection is based on a combination of references".

The Appellants respectfully submit that what the Examiner stated is not the Appellants' argument. Instead, the Appellants are arguing by presenting non-rebuttable evidence that even when

U.S.S.N. 09/955,512

all four references are combined, the primary features of the present invention as recited in independent claims 1 and 11:

1. A movable platform (or loadport); and
2. A closed-loop feedback control system,

are not taught or disclosed by the four references, either singularly or in combination thereof.

CLOSING

In summary, the Appellants have shown that their claimed invention is fully supported by a body of evidence of non-obviousness. It is therefore respectfully submitted that such evidence of non-obviousness overcomes any showing of obviousness presented by the Examiner. The Appellants therefore submit that the final rejection of their claims 1-3, 5, 7-12, 14-17 and 19-20 is improper under 35 USC §103(a).

The reversal of the final rejection is respectfully solicited from the Board.

Respectfully submitted,

Tung & Associates

By: 

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RWT\kd

CLAIM APPENDIX

1. (original) A loadport equipped with automatic height adjustment means comprising:

a movable platform adapted for carrying a wafer cassette thereon and for moving vertically in an up-and-down direction;

at least two support members for supporting said movable platform and for moving said platform in an up-and-down direction;

a distance sensor mounted on a bottom surface of said movable platform for measuring a height of said movable platform; and

a process controller for receiving a first signal from said distance sensor, comparing to a pre-stored datum and then sending a second signal to said at least two support members to move said movable platform until said first signal equals said pre-stored datum.

2. (original) A loadport equipped with automatic height adjustment means according to claim 1, wherein said movable platform is a load port platform.

3. (original) A loadport equipped with automatic height adjustment means according to claim 1, wherein said at least two support members are two support members spaced-apart each for supporting one of two ends of said movable platform.

4. (Cancelled)

5. (original) A loadport equipped with automatic height adjustment means according to claim 1, wherein said at least two support members further comprises a screw and a screw rail operated by a motor for moving said movable platform in an up-and-down direction.

6. (Cancelled)

7. (original) A loadport equipped with automatic height adjustment means according to claim 1, wherein said movable platform further comprises a leveling sensor mounted on or adjacent to a top surface of said platform.

8. (original) A loadport equipped with automatic height adjustment means according to claim 1, wherein said movable platform further comprises a leveling sensor and a leveling means mounted on said platform.

9. (original) A loadport equipped with automatic height adjustment means according to claim 1, wherein said distance sensor is an optical sensor.

10. (original) A loadport equipped with automatic height adjustment means according to claim 1, wherein said distance sensor is a sonic sensor.

11. (original) A method for automatically adjusting the height of a loadport comprising the steps of:

providing a movable platform capable of being moved in an up-and-down direction;

mounting the movable platform on at least two support members;

mounting a distance sensor on a bottom surface of said movable platform;

connecting a process controller to said distance sensor and said at least two support members;

measuring a height of said movable platform and sending a first signal to said process controller;

comparing said first signal with a pre-stored datum in said process controller and determining a deviation; and

adjusting the height of said movable platform by said at least two support members until said deviation becomes zero.

12. (original) A method for automatically adjusting the height of a loadport according to claim 11 further comprising the step of adjusting the height of said movable platform by said at least two support members wherein each being equipped with a screw and a screw rail operated by a motor.

13. (Cancelled)

14. (original) A method for automatically adjusting the height of a loadport according to claim 11 further comprising the step of mounting a leveling sensor on said movable platform and adjusting the leveling of said platform.

15. (original) A method for automatically adjusting the height of a loadport according to claim 11 further comprising the step of measuring a height of said platform by using an optical type distance sensor.

16. (original) A method for automatically adjusting the height of a loadport according to claim 11 further comprising the step of measuring a height of said platform by using a sonic type distance sensor.

17. (original) A method for automatically adjusting the height of a loadport according to claim 11 further comprising the step of mounting the movable platform at two distant ends by two support members.

18. (Cancelled)

19. (original) A method for automatically adjusting the height of a loadport according to claim 11 further comprising the step of measuring a height of the platform by an infrared sensor.

U.S.S.N. 09/955,512

20. (original) A method for automatically adjusting the height of a loadport according to claim 11 further comprising the step of measuring a height of the platform by an ultrasonic sensor.